

## TECHNICAL MEMORANDUM

**To:** Kevin Turner and Steve Faryan

*Monte M. Nienkerk*

**From:** Monte Nienkerk

**CC:** Chris Cahnovsk (2 copies), Jim Moore (3copies), Dave Webb, Dave Bereska, Tom Binz (4 copies), Robert Egan, Robert Howe, Hartford Working Group

**Subject:** **Modification of Analytical Parameter List for Quarterly Sentinel Well Monitoring**  
**1190505040 -- Madison County -- ILR000128249**  
**The Hartford Area Hydrocarbon Plume Site**  
**Village of Hartford, Illinois**

**Date:** June 22, 2005

### Introduction

This Technical Memorandum documents the modification of the analytical parameter list ("Skinner List") for quarterly sentinel well monitoring as agreed at the April 14, 2005 meeting in Collinsville, Illinois between the Hartford Working Group (HWG) and the U.S. Environmental Protection Agency (EPA) and Illinois Environmental Protection Agency (Agencies). The "Skinner List", which was required by the Administrative Order on Consent (AOC) with the United States Environmental Protection Agency (U.S. EPA) in the matter of The Hartford Area Hydrocarbon Plume Site (Docket No. R7003-5-04-001), contained the parameters for sentinel well groundwater analysis. The modification of the analytical parameter list was proposed by the HWG in the Sentinel Wells Quarterly Monitoring Report January 2005, prepared by Clayton Group Services on behalf of the HWG and dated April 8, 2005 (January 2005 Sentinel Well Report). The five sentinel wells are known as HMW-25 through HMW-29, inclusive (Figure 1).

### Revised Analytical Parameter List

The January 2005 Sentinel Well Report proposed a reduction in analytical parameters from the "Skinner List" to the following parameters: benzene, ethylbenzene, toluene, xylenes (collectively referred to as BETX) and "Skinner List" metals, both total and

dissolved. At the April 14, 2005 meeting, the Agencies agreed to the above reduction with the following modification. The Agencies requested the addition of methyl tertiary butyl ether (MTBE) to the proposed parameter list.

Therefore, the modified analytical parameter list for the five sentinel wells, HMW-25 through HMW-29, consists of

Benzene;

Ethylbenzene;

Toluene;

Xylenes;

MTBE and;

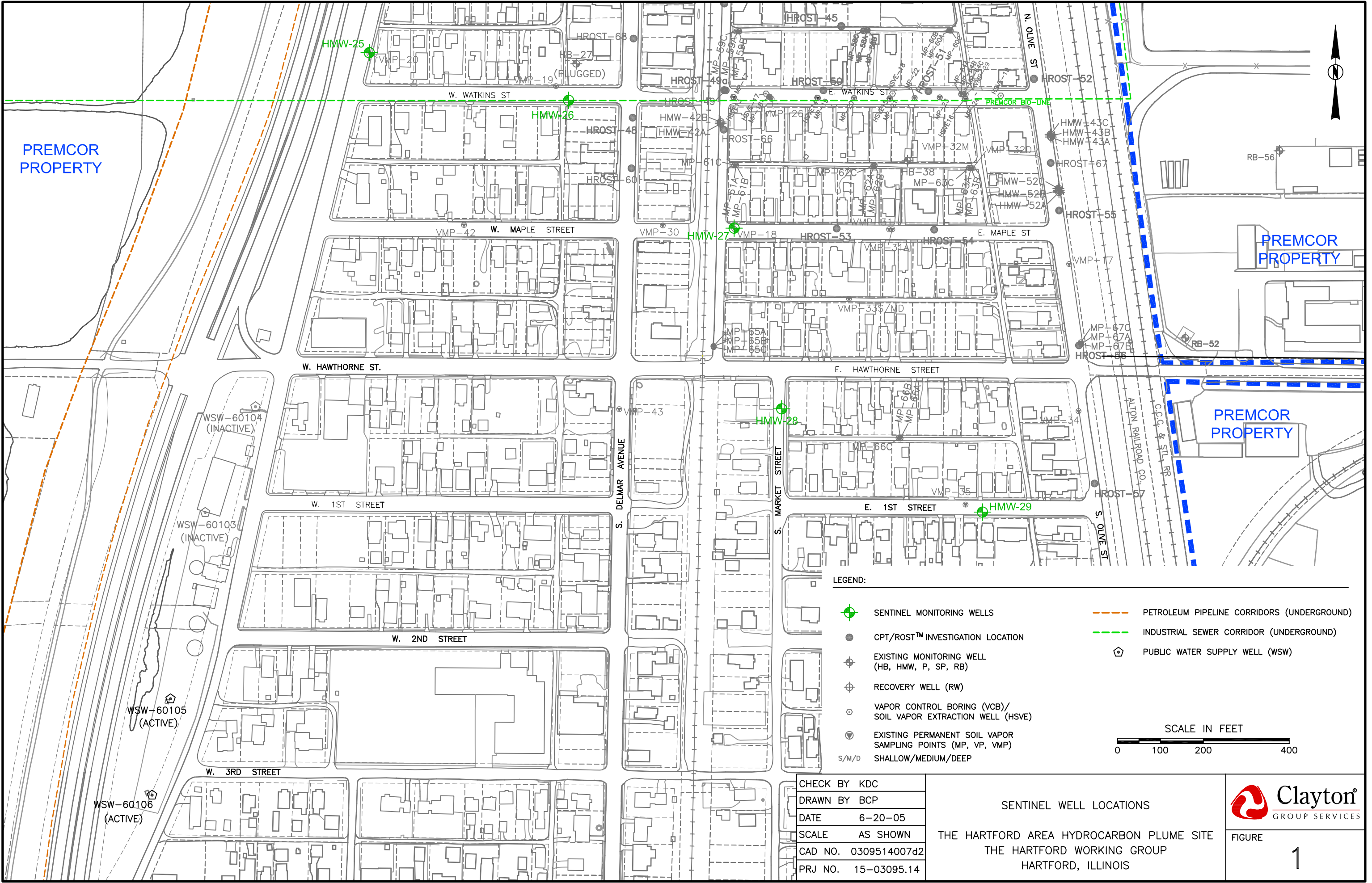
“Skinner List” metals both total and dissolved (see Table 1).

The new Sentinel Well parameter list, the practical quantitation limits, and the analytical methods are presented in Table 1. The sample containers with applicable preservation requirements (if appropriate) for each parameter are presented in Table 2.

### **Implementation Schedule**

The new Sentinel Well parameter list will be implemented in the next quarterly sampling round that currently is scheduled in July 2005.

Enclosures:   Figure 1 – Sentinel Well Locations  
                  Table 1 – Compound/Analyte List for Sentinel Well Water Samples  
                  Table 2 – Sample Container, Preservation, and Holding Time  
                  Requirements for Sentinel Well Water Samples



CHECK BY	KDC
DRAWN BY	BCP
DATE	6-20-05
SCALE	AS SHOWN
CAD NO.	0309514007d2
PRJ NO.	15-03095.14

SENTINEL WELL LOCATIONS

THE HARTFORD AREA HYDROCARBON PLUME SITE  
THE HARTFORD WORKING GROUP  
HARTFORD, ILLINOIS



Clayton  
GROUP SERVICES

FIGURE  
**1**

**TABLE 2**  
**Sample Container, Preservation, and Holding Time Requirements For**  
***Sentinel Well Water Samples***

**1190505040 -- Madison County -- ILR000128249**  
**The Hartford Working Group / Hartford, Illinois**

PARAMETER	ANALYSIS	HOLDING TIME	CONTAINER	PRESERVATION
Organics	VOCs	14 days	3-40 ml VOC vials	HCl to pH < 2, no headspace Maintained at 4 + 2 degrees Celcius
Metals	Inorganic Metals	180 days	250 ml plastic jar	HNO <sub>3</sub> to pH<2 Maintained at 4 + 2 degrees Celcius
	Mercury	28 days		

**TABLE 1**  
**Compound/Analyte List for Sentinel Well Water Samples - VOCs**  
***Village of Hartford***

1190505040 -- Madison County -- ILR 000128249  
The Hartford Working Group / Hartford, Illinois

PARAMETER	PREPARATION METHOD		ANALYTICAL METHOD		COMPOUND	METHOD DETECTION LIMIT *	PRACTICAL QUANTITATION LIMIT *	ACCEPTABLE DETECTION LIMIT **
	Source	Method No.	Source	Method No.				
VOCs						(µg/L)	(µg/L)	(µg/L)
	SW-846	5030	SW-846	8260	Benzene	0.5	2	5
	SW-846	5030	SW-846	8260	Ethylbenzene	1	5	700
	SW-846	5030	SW-846	8260	Methyl tertiary butyl ether (MTBE)	0.5	2	70
	SW-846	5030	SW-846	8260	Toluene	1	5	1,000
	SW-846	5030	SW-846	8260	o, m, p-Xylenes (total)	1	5	10,000

**NOTES:**

µg/L = Micrograms per liter

\* Method detection limit and practical quantitation limit as identified by Teklab, Inc. (Ottensmeier, 2004).

\*\* Acceptable detection limit is the IPCB TACO Tier 1 Groundwater Remediation Objective for Class I Groundwater.

**TABLE 1**  
**Compound/Analyte List for Sentinel Well Water Samples - Inorganics**  
**Village of Hartford**

1190505040 -- Madison County -- ILR 000128249  
The Hartford Working Group / Hartford, Illinois

PARAMETER	PREPARATION METHOD		ANALYTICAL METHOD		COMPOUND	METHOD DETECTION LIMIT *	PRACTICAL QUANTITATION LIMIT *	ACCEPTABLE DETECTION LIMIT **
	Source	Method No.	Source	Method No.				
<b>Metals</b>						(mg/L)	(mg/L)	(mg/L)
	SW-846	3020A	SW-846	7041	Antimony	0.0017	0.005	0.006
	SW-846	3020A	SW-846	7060A	Arsenic	0.0007	0.003	0.05
	SW-846	3005A	SW-846	6010	Barium	0.0024	0.005	2
	SW-846	3005A	SW-846	6010	Beryllium	0.003	0.001	0.004
	SW-846	3005A	SW-846	6010	Cadmium	0.0003	0.002	0.005
	SW-846	3005A	SW-846	6010	Chromium-Total	0.004	0.01	0.1
	SW-846	3005A	SW-846	6010	Cobalt	0.0022	0.01	1
	SW-846	3020A	SW-846	7421	Lead	0.0004	0.002	0.0075
	--	--	SW-846	7470	Mercury	0.00005	0.0002	0.002
	SW-846	3005A	SW-846	6010	Nickel	0.0033	0.01	0.1
	SW-846	3020A	SW-846	7740	Selenium	0.0035	0.006	0.05
	SW-846	3005A	SW-846	6010	Silver	0.0032	0.01	0.05
	SW-846	3005A	SW-846	6010	Vanadium	0.0032	0.01	0.049
	SW-846	3005A	SW-846	6010	Zinc	0.0021	0.01	5

**NOTES:**

mg/L = Milligrams per liter

-- = Not applicable

\* Method detection limit and practical quantitation limit as identified by Teklab, Inc. (Ottensmeier, 2004).

\*\* Acceptable detection limit is the IPCB TACO Tier 1 Groundwater Remediation Objective for Class I Groundwater.